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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/679,458

10/07/2003

Wen Yen Huang

HUAN 3218/EM

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7590

10/07/2005

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EXAMINER

GOLDEN, JAMES R

ART UNIT

PAPER NUMBER

2187

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/679,458

Applicant(s)

HUANG, WEN YEN

Examiner

James Golden

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

The instant application 10/679458 has a total of 4 claims pending. There is 1 independent claim and 3 dependent claims.

Specification

1. The disclosure is objected to because of the following informalities: "connected the data pins" should be corrected to --connected to the data pins.-- Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claim 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over Huang (US 2004/0015626) in view of Ohie et al. (US 6,938,108).

4. **With respect to claim 1**, Huang discloses a portable USB storage device, comprising:

- a USB connector (10 of Fig. 2; paragraph 23, lines 3-4) having
 - power pins (inherent in paragraph 28, lines 5-end and paragraph 22, lines 3-4) and
 - data pins (inherent in paragraph 17, lines 10-12, lines 16-end);
- a DRAM unit (22 of Fig. 2);

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- a USB controller (20 of Fig. 2) connected to
 - the data pins (connection between 20 to 10 of Fig. 2) and
 - the DRAM unit (connection between 20 and 22)
 - for controlling data access of the DRAM unit (paragraph 17, lines 12-end);
- a refreshing circuit coupled to the power pins (24 of Fig. 2),
 - the refreshing circuit being operative to supply refreshing pulses to the DRAM unit when the USB connector is inserted into a socket of a host (paragraph 24, lines 12-end); and
- a rechargeable battery (24 of Fig. 2; paragraph 22, lines 22-end)
 - charged via the power pins when the USB connector is inserted into the socket of the host (paragraph 22, lines 21-end),
 - the rechargeable battery being operative to supply power to the DRAM unit and the USB controller (paragraph 24, lines 2-5)
- wherein, responsive to disconnecting the USB connector from the host,
 - the DRAM unit is switched to a self-refreshing mode by the USB controller (paragraph 22, lines 17-20; paragraph 24, lines 12-end).

Huang does not expressly disclose the USB controller entering into a power saving mode responsive to disconnecting the USB connector from the host.

Ohie et al. disclose a USB controller entering into a power saving mode responsive to disconnecting the USB connector from the host (column 4, lines 66-67 -- column 5, lines 1-4; column 19, lines 33-36, lines 41-52).

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Huang and Ohie et al. are analogous art because they are from the same field of endeavor, namely USB peripheral devices.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to apply the suspend mode of the USB controller of Ohie et al. to Huang's USB control circuit. According to Ohie et al., the motivation for doing so would have been because "the USB control unit 10 can be set to the suspend mode so that the power consumption can be reduced" (column 19, lines 45-46), thereby prolonging battery life and device operation.

Therefore, it would have been obvious to combine Ohie et al. with Huang for the benefit of a DRAM USB memory storage device with a USB controller that transitions to a suspend mode when disconnected from the host device to obtain the invention as specified in claim 1.

5. **Claims 3 and 2** are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang (US 2004/0015626) in view of Ohie et al. (US 6,938,108) as applied to claim 1 above, and further in view of Barrenscheen et al. (US 6,854,024).

6. **With respect to claim 3**, Huang and Ohie et al. disclose the portable USB storage device as in claim 1 (see above paragraph 4).

Huang and Ohie et al. do not expressly disclose the limitation wherein the USB controller comprises a detection pin coupled to the power pins, the detection pin being adapted to detect the disconnection of the USB storage device from the host.

Barrenscheen et al. disclose the limitation wherein the USB controller (7 of Fig. 2) comprises a detection pin (10 of Fig. 2) coupled to the power pins, the detection pin

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being adapted to detect the disconnection of the USB storage device from the host (column 4, lines 22-27).

Huang, Ohie et al. and Barrenscheen et al. are analogous art because they are from the same field of endeavor, namely USB peripheral devices.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to use a pin to detect the presence of the host computer in on the DRAM storage device resulting from the combination of Huang and Ohie et al. Huang refers to his device detecting its connection or disconnection from a host computer (paragraph 22, lines 8-11; paragraph 24, lines 12-16; 402 of Fig. 4), but never provides a specific method for doing so; a detection pin is a method whereby this could be achieved. According to Huang, the motivation for a detection pin would have been because "The process [of storing data] further comprises commanding the power supply unit 24 to supply power to the volatile memory 22 for maintaining its normal operation when the connector 10 is not electrically connected to the electronic device 3. In other words, a potential loss of stored data in the volatile memory 22 is prevented from occurring even when the connector 10 is not electrically connected to the electronic device" (paragraph 24, lines 12-19). The detection pin triggers the control circuit to switch the power source to the power supply unit 24, so the DRAM can be constantly refreshed and its data will not be lost.

Therefore, it would have been obvious to a person of ordinary skill in the art to combine Barrenscheen et al. with Huang and Ohie et al. for the benefit of a DRAM USB memory storage device with a USB controller that transitions to a suspend mode when disconnected from the host device and has a third pin coupled to the power pins to

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determine whether the device was connected to a host computer to obtain the invention specified in claim 3.

7. **With respect to claim 2**, Huang and Ohie et al. disclose the portable USB storage device as in claim 1 (see above paragraph 4), further comprising a charging circuit coupled to the power pins (24 of Fig. 2), the charging circuit being operative to charge the rechargeable battery in response to receiving an instruction (paragraph 22, lines 21-end).

Huang and Ohie et al. do not expressly disclose receiving an instruction from the power pins.

Barrenscheen et al. disclose receiving an instruction from the power pins (column 4, lines 22-25).

See above paragraph 6 for why the three references are analogous art, how Huang and Ohie et al. are modified by Barrenscheen et al. and how the power pins indicate the disconnection of the device from a host computer to the control circuit. The detection pin carries the power signal and is therefore also a power pin (Barrenscheen et al., column 4, lines 25-29), and its indication of connection or disconnection is a type of instruction. The motivation for combining Huang, Ohie et al. and Barrenscheen et al. would have been because "The power switch circuit 25 is activated by the control circuit 20 when the apparatus is electrically connected to the electronic device 3 [host computer]... Hence, the control circuit 20 is able to cut off a power supply from the power supply unit 24 to the volatile memory 22 based on the switch signal. At this time, power for maintaining a normal operation of the volatile memory 22 is supplied by the electronic device 3 [host computer]. The power supply unit 24 is a rechargeable battery

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in the embodiment. Thus, a portion of power for maintaining the normal operation of the volatile memory 22 supplied by the electronic device 3 may be applied to the battery for charging" (paragraph 22, lines 8-end). When the device is attached to a host computer, the detect pin sends an indication (i.e., instruction) that triggers the control circuit to stop powering itself and the memory using the battery and to switch to power from the host computer and begin recharging the battery.

Therefore, it would have been obvious to a person of ordinary skill in the art to combine Barrenscheen et al. with Huang and Ohie et al. for the benefit of a DRAM USB memory storage device with a USB controller that transitions to a suspend mode when disconnected from the host device and detects when it is attached to a host computer in order to use power from the computer and recharge the battery through the USB connection to obtain the invention as specified in claim 2.

8. **With respect to claim 4**, Huang and Ohie et al. disclose the portable USB storage device as in claim 1 (see above paragraph 4). Although they disclose a USB connection between the storage device and a host computer (10 of Fig. 2), they do not expressly disclose the limitation wherein the power pins are comprised of a +5 V pin and a ground pin, and the data pins are comprised of a D+ pin and a D- pin.

The examiner takes official notice that a USB connection to a host computer through +5 V, ground, D+ and D- lines is quite well known in the art of USB peripheral devices.

Therefore, it would have been obvious to a person of ordinary skill in the art to use these power and data transfer lines for the benefit of a DRAM USB memory storage

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device to obtain the invention as specified in claim 4 so as to allow the device to take power from and exchange data with the host computer.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US 2005/0114570 teaches a USB storage device with a DRAM memory and a rechargeable battery to maintain the data in the memory when the device is not connected to a host computer.
- US 6,944,701 teaches a USB storage device with a Flash memory and a rechargeable battery that can be used to power a second function, such as an LED or alarm, when the device is disconnected.

10. Per the instant office action, claims 1-4 have received a first action on the merits and are the subject of a first action non-final.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Golden whose telephone number is 571-272-5628. The examiner can normally be reached on Monday-Friday, 8:30 AM - 5:30 PM.

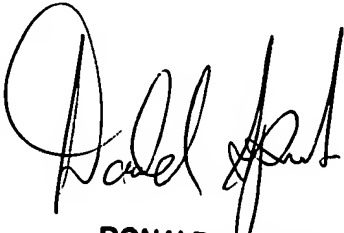
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on 571-272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James R. Golden
Assistant Examiner
Art Unit 2187

September 28, 2005



DONALD SPARKS
SUPERVISORY PATENT EXAMINER